REMARKS

Claims 1 and 10 have been amended. Claims 2, 4-5, 11, and 13-14 have been canceled. Reexamination and reconsideration of the pending claims are respectfully requested.

Claim Objections

The Examiner objected to Claims 2 and 11 because of an informality. Applicants have canceled these claims and, respectfully request withdrawal of this objection.

Claim Rejections – 35 U.S.C. § 103

The Examiner rejected Claims 1-2, 4, 8-11, 13, and 17-18 under 35 U.S.C. § 103 as being unpatentable over U.S. Published Patent Application No. 2003/0102947 ("Ho") in view of U.S. Patent No. 6,275,365 ("Kalsi").

Ho does not teach or suggest the subject matter of amended independent Claim 1. Ho does not teach or suggest a protection device comprising a plastic non-ferromagnetic coil form onto which the winding is applied, wherein the electrically conductive winding is a bifilar winding which is made from an enameled copper wire wound in a single layer around said coil form. Rather, Ho discloses a multipurpose input device connected between an AC input source and a rectifying circuit 3. Paragraph 14. The multipurpose input device comprises a magnetic component 1 and a resistance coil 2. Id. The magnetic component 1 is a magnetic core having ferromagnetic characteristics. Paragraph 15.

Ho does not teach or suggest a non-ferromagnetic core and enameled copper wire used for the winding. Ho also does not teach or suggest a bifilar winding as acknowledged by the Examiner in the present Office action on page 3. For these and other reasons, Ho does not teach or suggest the subject matter defined by independent Claim 1.

Kalsi does not cure the deficiencies of Ho. Kalsi does not teach or suggest a protection device comprising an electrically conductive winding, said winding comprising a low inductance ohmic resistance for restricting input currents, as well as an interruption function, and a plastic non-ferromagnetic coil form onto which the winding is applied, wherein the electrically conductive winding is a bifilar winding which is made from an enameled copper wire wound in a single layer around said coil form. Rather, Kalsi discloses a sub-network 104 including a superconducting fault current limiter 10 connected between the output of transformer 108 and a

connection point 114. The sub-network 104 provides electrical power to a geographical region, such as an industrial complex or a residential area via power transmission lines. The transformer 108 is use for stepping-down a high voltage, such as 110KV to a lower distribution voltage, such as 10.5KV. The superconducting fault current limiter 10 includes a series of bifilar "pancake" coils 12, each having co-wound, bifilar conductors. Each pancake coil 12 is formed from the same continuous length of superconducting tape 14 as a pair of conductive segments 32, 34 folded over itself at an intermediate loop region 36 and then wound around a support tube 18.

Kalsi does not teach or suggest enameled copper wire used for the winding and that the winding is wound in a single layer around the coil form. For these and other reasons, Kalsi does not teach or suggest the subject matter defined by independent Claim 1.

In addition, there is no suggestion or motivation to combine the teachings of Ho and Kalsi. A person of ordinary skill in the art would not look to superconductor fault current limiters used in power plant applications for meeting the EMC requirements for a power supply circuit. In addition, one cannot take a component (e.g., the pancake bifilar windings), described in one patent document (Kalsi), combine it with another component (e.g., the core) described in a second patent document (Ho), and expect the combination to work. When considering inductance issues, one must consider, at least, the material of the core, the width of the core, the diameter of the wire, the number of turns of the wire around the core, and the spacing between the turns of the coil. Just because the pancake bifilar windings work around a non-ferromagnetic core for a power plant application does not mean that the pancake bifilar windings will work around a ferromagnetic core in satisfying EMC requirements of a power supply circuit. There is simply no suggestion or motivation to combine the pancake bifilar windings of Kalsi with the ferromagnetic core of Ho.

The Examiner indicated that "Kalsi et al. teach 'In essence, this parallel, bifilar winding approach provides a low inductance with a configuration (i.e., coil, solenoid) commonly associated with providing high inductance' (Col. 5, lines 36-39), therefore replacement of the multilayer coil (2) of Ho with a bifilar winding coil will eliminate the EMC choke, and multilayer coil (2) will be a low inductance resistive winding." Office action dated October 19, 2004, pages 3-4. The Examiner is making an assumption here. The EMC choke function of Ho provides a high-frequency impedance between the AC input source and equipment. Impedance of a circuit depends on the inductance of the coil. Replacing the coil of Ho with the pancake

bifilar windings of Kalsi will not eliminate the EMC choke function of the Ho device. The pancake bifilar windings of Kalsi work with a non-ferromagnetic core to provide low inductance in power plant applications. The pancake bifilar windings of Kalsi added to the ferromagnetic core of Ho will exhibit different electrical characteristics, especially a different inductance value.

Accordingly, independent Claim 1 is allowable. Dependent Claims 3 and 6-9 depend from independent Claim 1 and are allowable for the same and other reasons.

Ho and Kalsi also do not teach or suggest the subject matter of amended independent Claim 10. For at least the same or similar reasons specified above with respect to Claim 1, Ho and Kalsi do not teach or suggest a protection device comprising a plastic non-ferromagnetic coil form; and an electrically conductive bifilar winding applied to the coil form in one single winding layer, the bifilar winding including a low inductance ohmic resistance operable to restrict an input current, and being made from an enameled copper wire.

For these and other reasons, Ho and Kalsi do not teach or suggest the subject matter defined by independent Claim 10. Accordingly, independent Claim 10 is allowable. Dependent Claims 12 and 15-18 depend from independent Claim 10 and are allowable for the same and other reasons.

The Examiner rejected Claims 3 and 12 under 35 U.S.C. § 103 as being unpatentable over Ho in view of Kalsi, and further in view of U.S. Patent No. 3,845,417 ("Zaleski").

Claim 3 depends from independent Claim 1, and is allowable for at least the reasons Claim 1 is allowable. Claim 3 further specifies that a plurality of turns of the winding are spaced apart for a mutual insulation.

Zaleski does not cure the deficiencies of Ho and Kalsi. Zaleski does not teach or suggest a protection device comprising an electrically conductive winding, said winding comprising a low inductance ohmic resistance for restricting input currents, as well as an interruption function, and a plastic non-ferromagnetic coil form onto which the winding is applied, wherein the electrically conductive winding is a bifilar winding which is made from an enameled copper wire wound in a single layer around said coil form. Rather, Zaleski discloses a body 11 of ferrite around which is a closely wound single layer coil of insulated wire. The ends 13, 14 of the coil are left unconnected. This device is used for modulating microwave energy based on the magnetic field produced by the device. Zaleski does not teach or suggest a winding for limiting

input currents, a non-ferromagnetic coil form, and a bifilar winding made from enameled copper wire.

In addition, there is no suggestion or motivation to combine the teachings of Ho, Kalsi, and Zaleski. The device of Zaleski cannot be combined with Ho or Kalsi. The ends of the coil are not connected to anything, therefore, the device of Zaleski is not used to limit input currents. A person of ordinary skill in the art would not look to devices that affect microwave energy when designing components or solving problems with input current. Accordingly, dependent Claim 3 is allowable.

Claim 12 depends from independent Claim 10. Ho, Kalsi, and Zaleski do not teach or suggest the subject matter of Claim 12 for at least the reasons set forth above with respect to Claims 3 and 10. Accordingly, Claim 12 is allowable.

The Examiner rejected Claims 6-7 and 15-16 under 35 U.S.C. § 103 as being unpatentable over Ho in view of Kalsi, and further in view of U.S. Patent No. 4,821,152 ("Lorenzen").

Claims 6-7 depend from independent Claim 1, and are allowable for at least the reasons Claim 1 is allowable. Claim 6 specifies that the protection device further comprises one of a wire end and a terminal pin to be soldered into a printed circuit board. Claim 7 specifies that the protection device further comprises a soldering point for an assembly on the surface of a printed circuit board.

Lorenzen does not cure the deficiencies of Ho and Kalsi. Lorenzen does not teach or suggest a protection device comprising an electrically conductive winding, said winding comprising a low inductance ohmic resistance for restricting input currents, as well as an interruption function, and a plastic non-ferromagnetic coil form onto which the winding is applied, wherein the electrically conductive winding is a bifilar winding which is made from an enameled copper wire wound in a single layer around said coil form. Rather, Lorenzen discloses a method of mounting electric components on printed circuit boards. Lorenzen does not teach or suggest a winding for limiting input currents, a non-ferromagnetic coil form, and a bifilar winding made from enameled copper wire.

In addition, there is no suggestion or motivation to combine the teachings of Ho, Kalsi, and Lorenzen. The method of Lorenzen cannot be used with Kalsi because the device of Kalsi is

not mounted on a circuit board. The superconducting fault current limiter 10 is used in sub-networks of a power plant. The superconducting fault current limiter 10 is not a small electric component suitable for soldering on a circuit board. Accordingly, dependent Claims 6-7 are allowable.

Claims 15-16 depend from independent Claim 10. Ho, Kalsi, and Lorenzen do not teach or suggest the subject matter of Claims 15-16 for at least the reasons set forth above with respect to Claims 6-7 and 10. Accordingly, Claims 15-16 are allowable.

The Examiner rejected Claims 5 and 14 under 35 U.S.C. § 103 as being unpatentable over Ho in view of Kalsi, and further in view of U.S. Patent No. 5,835,066 ("Kropielicki").

Claims 5 and 14 have been canceled in this Amendment, therefore this rejection is moot. The subject matter of Claim 5 has been incorporated into independent Claim 1, and the subject matter of Claim 14 has been incorporated into independent Claim 10, therefore Applicants provide the following comments.

Kropielicki does not cure the deficiencies of Ho and Kalsi. Kropielicki does not teach or suggest a protection device comprising an electrically conductive winding, said winding comprising a low inductance ohmic resistance for restricting input currents, as well as an interruption function, and a plastic non-ferromagnetic coil form onto which the winding is applied, wherein the electrically conductive winding is a bifilar winding which is made from an enameled copper wire wound in a single layer around said coil form. Rather, Kropielicki discloses a bifilar coil 8 having two windings 9, 10 supported by a housing 1. The bifilar coil 8 includes two separate coils - inner coil 9 and outer coil 10. The bifilar coil 8 is used for isolating radio signals detected by a motor vehicle window heating element from the power supply circuit for the heating element.

In addition, there is no suggestion or motivation to combine the teachings of Ho, Kalsi, and Kropielicki. A person of ordinary skill in the art would not look to devices that separate signals when designing components or solving problems with input current.

CONCLUSION

In view of the foregoing allowance of Claims 1, 3, 6-10, 12, and 15-18 is respectfully requested. The undersigned is available for telephone consultation during normal business hours.

Respectfully submitted,

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